Amendments to the Claims:

The listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

5   1. (currently amended)   A memory management method used in the decoding process of a video frame, for storing at least one motion vector of a decoded first macroblock as at least one candidate predictor for future use in the decoding process, the method comprising:

allocating a first memory space and a second memory space in a first

10   memory, wherein each of the first and the second memory spaces is sufficient for storing one motion vector; [[and]]

determining a type of the first macroblock; and

~~when the first macroblock comprises only one first motion vector,~~ storing ~~the first~~ at least one motion vector of the first macroblock in the first or

15   the second memory space according to the type of the first macroblock.

2. (currently amended)   The method of claim 1, ~~further comprising~~ wherein the step of determining the type of the first macroblock comprises:

20   determining whether the first macroblock comprises a first block, a second block, a third block, and a fourth block; and

the step of storing at least one motion vector of the first macroblock in the first or the second memory space according to the type of the first macroblock comprises:

25   when the first macroblock is determined to comprise ~~comprises a~~ the first block, [[a]] the second block, [[a]] the third block, and [[a]] the fourth block, storing the motion vector of the third block in the first memory space and storing the motion vector of the fourth block in the second memory space.

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3. (original)   The method of claim 1, wherein the video frame is a progressive

frame.

4. (original)   The method of claim 1, wherein the video frame is an interlaced
        frame.

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5. (currently amended)   The method of claim 4, ~~further comprising~~ <u>wherein the</u>
        <u>step of determining the type of the first macroblock comprises:</u>
        <u>determining whether the first macroblock comprises a first field and a</u>
            <u>second field; and</u>
        <u>the step of storing at least one motion vector of the first macroblock in the</u>
            <u>first or the second memory space according to the type of the first</u>
            <u>macroblock comprises:</u>
        when the first macroblock <u>is determined to comprise</u> ~~comprises a~~ <u>the</u> first
            field and [[a]] <u>the</u> second field, storing the motion vector of the first
            field in the first memory space and storing the motion vector of the
            second field in the second memory space.

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6. (original)   The method of claim 1, wherein the first memory is a DRAM, an
        SRAM, or registers.

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7. (currently amended)   A memory management method used in the decoding
        process of a video frame, for storing at least one motion vector of a decoded
        first macroblock as at least one candidate predictor for use in decoding a
        next macroblock, the method comprising:
        allocating a first memory space and a second memory space in a first
            memory, wherein each of the first and the second memory spaces is
            sufficient for storing one motion vector; [[and]]
        <u>determining a type of the first macroblock; and</u>
        ~~when the first macroblock comprises only one first motion vector,~~ storing
            ~~the first~~ <u>at least one</u> motion vector <u>of the first macroblock</u> in the first or
            the second memory space <u>according to the type of the first</u>

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macroblock.

8. (currently amended)   The method of claim 7, ~~further comprising~~ wherein the step of determining the type of the first macroblock comprises:

5   determining whether the first macroblock comprises a first block in a top-left corner, a second block in a top-right corner, a third block in a bottom-left corner, and a fourth block in a bottom-right corner; and

the step of storing at least one motion vector of the first macroblock in the first or the second memory space according to the type of the first

10   macroblock comprises:

when the first macroblock is determined to comprise ~~comprises a~~ the first block in [[a]] the top-left corner, [[a]] the second block in [[a]] the top-right corner, [[a]] the third block in [[a]] the bottom-left corner, and [[a]] the fourth block in [[a]] the bottom-right corner, storing the

15   motion vector of the second block in the first memory space and storing the motion vector of the fourth block in the second memory space.

9. (original)   The method of claim 7, wherein the video frame is a progressive

20   frame.

10. (original)   The method of claim 7, wherein the video frame is an interlaced frame.

25   11. (currently amended) The method of claim 10, ~~further comprising~~ wherein the step of determining the type of the first macroblock comprises:

determining whether the first macroblock comprises a first field and a second field; and

the step of storing at least one motion vector of the first macroblock in the

30   first or the second memory space according to the type of the first macroblock comprises:

when the first macroblock is determined to comprise comprises a the first field and [[a]] the second field, storing the motion vector of the first field in the first memory space and storing the motion vector of the second field in the second memory space.

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12. (original) The method of claim 7, wherein the first memory comprises processing registers, registers, a DRAM, or an SRAM.

13. (currently amended) A row-based memory management method used in the decoding process of a video frame, for storing the motion vectors of a plurality of decoded macroblocks as candidate predictors for use in the decoding process, wherein each row of the video frame comprises N macroblocks, the method comprising:

allocating N memory units in a first memory, wherein each memory unit comprises a first memory space and a second memory space, and each of the first and the second memory spaces is sufficient for storing at least one motion vector of one macroblock;

determining a location and a type of a first macroblock; and

storing at least one motion vector of the first macroblock in the first or the second memory space in a memory unit of the N memory units according to the type and the location of the first macroblock when a first macroblock located at an Lth row and a Kth column is decoded, storing at least one motion vector of the first macroblock in a Kth memory unit of the memory units to overwrite at least one motion vector of a second macroblock previously stored in the Kth memory unit, wherein the second macroblock is located at an $(L-1)^{th}$ row and the Kth column, K is an integer between 1 and N, and L is an integer larger than 1.

14. (original) The method of claim 13, wherein the video frame is a progressive frame.

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15. (original)   The method of claim 13, wherein the video frame is an interlaced frame.

5   16. (original)   The method of claim 13, wherein the first memory comprises a DRAM, an SRAM, or registers.

17. (currently amended) The method of claim 13, further comprising:

allocating an additional memory unit in a second memory, wherein the

10   additional memory unit is capable of storing at least one motion vector of one macroblock; and

when a [[third]] second macroblock of the video frame is decoded, storing at least one motion vector of the [[third]] second macroblock in the additional memory unit to overwrite at least one motion vector of a

15   fourth third macroblock previously stored in the additional memory unit, wherein the fourth third macroblock is decoded immediately before the [[third]] second macroblock.

18. (original)   The method of claim 17, wherein the first memory comprises

20   processing registers, registers, a DRAM, or an SRAM.

19. (new)   The method of claim 1, wherein the step of determining the type of the first macroblock comprises:

determining whether the first macroblock comprises only one first motion

25   vector; and

the step of storing at least one motion vector of the first macroblock in the first or the second memory space according to the type of the first macroblock comprises:

when the first macroblock is determined to comprise only one first motion

30   vector, storing the first motion vector in the first or the second memory space.

20. (new)   The method of claim 7, wherein the step of determining the type of the first macroblock comprises:

determining whether the first macroblock comprises only one first motion

5   vector; and

the step of storing at least one motion vector of the first macroblock in the first or the second memory space according to the type of the first macroblock comprises:

when the first macroblock is determined to comprise only one first motion

10   vector, storing the first motion vector in the first or the second memory space.

21. (new)   The method of claim 13, wherein the step of determining the location and the type of the first macroblock comprises:

15   determining whether the first macroblock is located at an Lth row and a Kth column of the video frame; and

the step of storing at least one motion vector of the first macroblock in the first or the second memory space in the memory unit of the N memory units according to the type and the location of the first macroblock comprises:

20   when the first macroblock is determined to be located at the Lth row and the Kth column of the video frame, storing at least one motion vector of the first macroblock in the first or the second memory space of a Kth memory unit of the memory units to overwrite at least one motion vector of a second macroblock previously stored in the Kth memory

25   unit, wherein the second macroblock is located at an (L-1)th row and the Kth column, K is an integer between 1 and N, and L is an integer larger than 1.